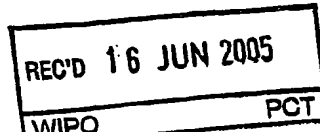


PATENT COOPERATION TREATY



From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/IB2005/050907

International filing date (day/month/year)
15.03.2005

Priority date (day/month/year)
26.03.2004

International Patent Classification (IPC) or both national classification and IPC
G06F13/16, G06F15/167

Applicant
KONINKLIJKE PHILIPS ELECTRONICS N.V.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and Industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office
D-80298 Munich
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Authorized Officer

Kamps, S

Telephone No. +49 89 2399-7070



**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IB2005/050907

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IB2005/050907

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or
Industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-8
	No: Claims	
Inventive step (IS)	Yes: Claims	1-8
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-8
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1 Prior Art

Reference is made to the following document:

D1: JUN XU: "Asynchronous interconnection and interfacing of Intellectual Property cores in the design of Systems-on-Chip" CENTRE FOR CONCURRENT SYSTEMS AND VLSI SCHOOL OF COMPUTING, INFORMATION SYSTEMS AND MATHEMATICS - SOUTH BANK UNIVERSITY, [Online] 2 October 2002 (2002-10-02), pages 125-153, XP002330546 LONDON Retrieved from the Internet: URL:<http://www.scism.sbu.ac.uk/ccsv/SBU-CI SM-02-18/> [retrieved on 2005-06-06]

2 Clarity

2.1 The application does not meet the requirements of Article 6 PCT, because claims 1, 7 and 8 are not clear.

2.2. The independent claims 1, 7 and 8 do not include the features which are necessary to define the matter for which protection is sought in terms of the context of the application (see PCT Guidelines 5.43 and 5.53). In this respect, the entire contents of the application (e.g. background of the invention and discussion of problems in the prior art; summary of the invention; detailed description; drawings) convey the impression that the claimed "transaction retraction" function is to be carried out in an integrated circuit having a plurality of processing modules which communicate over an on-chip interconnect using a split transaction communication protocol, as suggested by the description on page 3, line 6-14 and page 11, line 10-13. It is clear that the above mentioned integrated circuit, i.e. an integrated circuit which uses a split transaction communication protocol over an on-chip interconnect, is actually improved, not the general "integrated circuit" as claimed. Although it is described on page 5, line 29-30 that the "transaction retraction" function may also be performed in a multi-chip network or system with several integrated circuits, it is not disclosed how. It is therefore suggested to adapt the designation of the subject matter of the independent claims by incorporating the additional feature of using a

split transaction communication protocol over an on-chip interconnect.

3 Novelty / Inventive Step

- 3.1 The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and shows (the references in parentheses applying to this document):

Integrated circuit having a plurality of processing modules, wherein at least one first processing module issues at least one transaction towards at least one second processing module (page 126, fig. 5.1.1).

- 3.2 The subject-matter of claim 1 differs from this known integrated circuit in that it comprises at least one first transaction retraction unit for indicating the allowance to said at least one first of said processing modules to retract said at least one transaction according to the state of said second processing module.

- 3.3 The subject-matter of claim 1 is therefore new (Article 33(2) PCT).

- 3.4 The problem to be solved by the present invention may be regarded as how to avoid that the second processing module is left in an incorrect state due to the transaction retraction.

- 3.4 The solution to this problem as outlined in section 3.2 of this communication is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

- 3.5 Document D1 discloses a method for transaction retraction in an integrated circuit having a plurality of processing modules which use DTL (Device Transaction Protocol) for communication over a synchronous on-chip bus (page 127, 2nd paragraph). This method does not use a transaction retraction unit as claimed, but the second processing module is enforced by the protocol to process the transaction in merely one cycle (see also description of the prior art in the application on page 3, line 22-35).

- 3.5 Document D1 further proposes an enhancement to the DTL protocol for asynchronous communication and in this context addresses a similar problem as described in section 3.3 of this communication: If the first processing module alters a transaction, before the second processing unit has accepted the original transaction, the second processing unit could also be left in an incorrect state. D1 solves this problem (see page 146, 2nd paragraph) by introducing an asynchronous wrapper at the first and second processing module, whereby the wrapper at the first processing module does not transfer an altered transaction until the current (out-of-date) command transaction at the target wrapper has completed. I.e. the second processing module is required to consume the transaction twice.
- 3.6 There is no indication to adapt or modify the solution in D1 to arrive at the solution provided by the invention. In particular, there is no hint to make transaction retraction dependent on the state of the second processing module.
- 3.7 Independent method claim 7 and independent system claim 8 have all the features of independent apparatus claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.
- 3.8 Claim 2-6 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

PATENT COOPERATION TREATY

REC'D 16 JUN 2005
WIPO PCT

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Fax: +49 89 2399 - 4465

Authorized Officer

Kamps, S

Telephone No. +49 89 2399-7070



**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IB2005/050907

Box No. I Basis of the opinion

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a. type of material:

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4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/B2005/050907

**Box No. V Reasoned statement under Rule 43b/s.1(a)(i) with regard to novelty, inventive step or
Industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-8
	No: Claims	
Inventive step (IS)	Yes: Claims	1-8
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-8
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2. Citations and explanations

see separate sheet

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
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